may be used. The laser beams emitted by the two or more laser devices 4 illuminate one or more areas of the surface producing laser speckle interferences, wherein each area is illuminated by at least two beams. The relative displacement vector between the mouse device and the illuminated object surface producing laser speckle interferences is reflected by means of collecting movement information of laser speckle interference signals. As the principle and method of usage are the same as the above, unnecessary details will not be given here.

What is claimed is:

1. A method for processing optical signals in a computer mouse, characterized in that, the relative displacement vector between the mouse device and the illuminated object surface producing laser speckles is reflected by means of collecting movement information of laser speckle signals.

2. A method for processing optical signals in a computer mouse, characterized in that, the relative displacement vector between the mouse device and the illuminated object surface producing laser speckle interferences is reflected by means of collecting movement information of laser speckle interference signals.

3. A method for processing optical signals in a computer mouse as claimed in claim 1 or 2, characterized in that, said laser speckle signals or laser speckle interference signals are received by a photo sensor, and said laser speckle signals or laser speckle interference signals are processed, so as to calculate the quantity of laser speckle pulses or laser speckle interferences pulses received by the photo sensor, and to determine the relative displacement between the mouse device and the illuminated object surface producing laser speckles on the basis of the average size of the laser speckles or the laser speckle interferences..

4. A method for processing optical signals in a computer mouse as claimed in claim 3, characterized in that, said photo sensor has groups of photoelectric sensing units, wherein each group consists of two or more photoelectric sensing units aligned in a line; after laser speckle signals or laser speckle interference signals from the object surface illuminated by laser beams are received, relevant photoelectric signals are amplified and shaped by the group

of photoelectric sensing units to calculate the size of the component of relative displacement vector between the photo sensor and the illuminated object surface lying in the direction of the alignment of photoelectric sensing units; in the meantime, the direction of said component of the relative displacement vector is determined by the skewing of the electric signals produced by these two or more photoelectric sensing units.

5. A method for processing optical signals in a computer mouse as claimed in claim 4, characterized in that, said photo sensor has at least two groups of photoelectric sensing units, wherein each group consists of two or more photoelectric sensing units aligned in a line, and at least one group has an aligning direction different from the others, two of the groups may intersect with each other and use common units; after laser speckle signals or laser speckle interference signals from the object surface illuminated by laser beams are received, relevant photoelectric signals are amplified and shaped by these groups of photoelectric sensing units to calculate the size and direction of the component of relative displacement vector between the photo sensor and the illuminated object surface of the respective group, and the relative displacement vector between the photo sensor and the illuminated object surface in the two-dimensional plane is calculated on the basis of the size and direction of the components of said relative displacement vector calculated by two or more groups in different directions and the intersection angle between the components in different directions.

6. A device for processing optical signals in a computer mouse for carrying out the method for processing optical signals in a computer mouse as claimed in claim 1, consisting of a mouse body; inside the mouse body, an amplifying and shaping module (1), a direction identifying and counting module (2) and a computer interface circuit (3) for processing photoelectric signals are disposed and connected in sequence, characterized in that, said device further includes at least one laser device (4) and a photo sensor (5) for receiving laser speckle signals from the object surface illuminated by laser beams; said photo sensor (5) transfers the received photoelectric signals to the amplifying and shaping module (1).

7. A device for processing optical signals in a computer mouse as claimed in claim 6, characterized in that, said device further includes at least two laser devices (4) and a photo sensor (5) for receiving laser speckle interference signals from the object surface illuminated by laser beams; the laser beams emitted by said two or more laser devices (4) illuminate on

one or more areas of the surface producing laser speckle interferences, wherein each area is illuminated by at least two beams.

8. A device for processing optical signals in a computer mouse as claimed in claim 6, characterized in that, said device further includes at least one laser device (4), a beam splitter (8) and a photo sensor (5) for receiving laser speckle interference signals from the object surface illuminated by laser beams; the laser beam emitted by said laser device is split into two or more beams by the beam splitter (8) to illuminate on one or more areas of the surface producing laser speckle interferences, wherein each area is illuminated by at least two beams.